

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Total Metals By EPA Method 200.8

Client ID:	M123213A Sm. Tank	Client:	Alaskan Copper Works
Date Received:	08/20/09	Project:	PO M123213, F&BI 908159
Date Extracted:	08/20/09	Lab ID:	908159-01 x10000
Date Analyzed:	08/27/09	Data File:	908159-01 x10000.049
Matrix:	Aqueous	Instrument:	ICPMS1
Units:	ug/L (ppb)	Operator:	btb

Internal Standard:	% Recovery:	Lower Limit:	Upper Limit:
Germanium	105	60	125
Indium	93	60	125
Holmium	96	60	125

Analyte:	Concentration ug/L (ppb)
Chromium	6,160,000
Nickel	9,160,000
Copper	6,770,000
Zinc	43,800
Arsenic	<10,000
Silver	<10,000
Cadmium	10,200
Iron (screen)	34,500,000

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Total Metals By EPA Method 200.8

Client ID:	M123213B Lg. Tank	Client:	Alaskan Copper Works
Date Received:	08/20/09	Project:	PO M123213, F&BI 908159
Date Extracted:	08/20/09	Lab ID:	908159-02 x10000
Date Analyzed:	08/27/09	Data File:	908159-02 x10000.050
Matrix:	Aqueous	Instrument:	ICPMS1
Units:	ug/L (ppb)	Operator:	btb

Internal Standard:	% Recovery:	Lower Limit:	Upper Limit:
Germanium	103	60	125
Indium	90	60	125
Holmium	93	60	125

Analyte:	Concentration ug/L (ppb)
Chromium	17,000,000
Nickel	16,100,000
Copper	2,370,000
Zinc	84,000
Arsenic	15,600
Silver	<10,000
Cadmium	<10,000
Iron (screen)	46,100,000

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Total Metals By EPA Method 200.8

Client ID:	Method Blank	Client:	Alaskan Copper Works
Date Received:	Not Applicable	Project:	PO M123213, F&BI 908159
Date Extracted:	08/20/09	Lab ID:	I9-347 mb 2
Date Analyzed:	08/27/09	Data File:	I9-347 mb 2.044
Matrix:	Aqueous	Instrument:	ICPMS1
Units:	ug/L (ppb)	Operator:	btb

Internal Standard:	% Recovery:	Lower Limit:	Upper Limit:
Germanium	101	60	125
Indium	106	60	125
Holmium	106	60	125

Analyte:	Concentration ug/L (ppb)
Chromium	<1
Nickel	<1
Copper	<1
Zinc	<1
Arsenic	<1
Silver	<1
Cadmium	<1

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 09/01/09
Date Received: 08/20/09
Project: PO M123213, F&BI 908159
Date Analyzed: 08/26/09

**RESULTS FROM THE ANALYSIS OF AQUEOUS SAMPLES
FOR SPECIFIC GRAVITY
@ 15.56 °C**

Sample ID

Laboratory ID

Specific Gravity

M123213A Sm. Tank
908159-01

1.18

M123213B Lg. Tank
908159-02

1.26

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 09/01/09

Date Received: 08/20/09

Project: PO M123213, F&BI 908159

Date Analyzed: 08/27/09

**RESULTS FROM THE ANALYSIS OF AQUEOUS SAMPLES
FOR PERCENT ACID**

Sample ID
Laboratory ID

Percent Acid

M123213A Sm. Tank
908159-01

8.3

M123213B Lg. Tank
908158-02

10

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 09/01/09

Date Received: 08/20/09

Project: PO M123213, F&BI 908159

QUALITY ASSURANCE RESULTS FOR THE ANALYSIS OF AQUEOUS SAMPLES FOR TOTAL METALS USING EPA METHOD 200.8

Laboratory Code: 908097-01 (Duplicate)

Analyte	Reporting Units	Sample Result	Duplicate Result	Relative Percent Difference	Acceptance Criteria
Chromium	ug/L (ppb)	<1	<1	nm	0-20
Nickel	ug/L (ppb)	<1	<1	nm	0-20
Copper	ug/L (ppb)	17.4	16.6	5	0-20
Zinc	ug/L (ppb)	19.2	18.7	3	0-20
Arsenic	ug/L (ppb)	1.50	1.47	2	0-20
Silver	ug/L (ppb)	<1	<1	nm	0-20
Cadmium	ug/L (ppb)	<1	<1	nm	0-20

Laboratory Code: 908097-01 (Matrix Spike)

Analyte	Reporting Units	Spike Level	Sample Result	Percent Recovery MS	Acceptance Criteria
Chromium	ug/L (ppb)	20	<1	101	50-150
Nickel	ug/L (ppb)	20	<1	101	50-150
Copper	ug/L (ppb)	20	17.4	103 b	50-150
Zinc	ug/L (ppb)	50	19.2	102 b	50-150
Arsenic	ug/L (ppb)	10	1.50	104	50-150
Silver	ug/L (ppb)	5	<1	101	50-150
Cadmium	ug/L (ppb)	5	<1	105	50-150

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Acceptance Criteria
Chromium	ug/L (ppb)	20	88	70-130
Nickel	ug/L (ppb)	20	92	70-130
Copper	ug/L (ppb)	20	89	70-130
Zinc	ug/L (ppb)	50	90	70-130
Arsenic	ug/L (ppb)	10	83	70-130
Silver	ug/L (ppb)	5	89	70-130
Cadmium	ug/L (ppb)	5	90	70-130

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 09/01/09

Date Received: 08/20/09

Project: PO M123213, F&BI 908159

**QUALITY ASSURANCE RESULTS
FOR THE ANALYSIS OF AQUEOUS SAMPLES
FOR SPECIFIC GRAVITY
@ 15.56 °C**

Laboratory Code: 908159-01 (Duplicate)

Analyte	Sample Result	Duplicate Result	Relative Percent Difference	Acceptance Criteria
Specific Gravity	1.18	1.19	1	0-2

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 09/01/09

Date Received: 08/20/09

Project: PO M123213, F&BI 908159

**QUALITY ASSURANCE RESULTS
FROM THE ANALYSIS OF AQUEOUS SAMPLES
FOR PERCENT ACID**

Laboratory Code: 908158-01 (Duplicate)

Analyte	Sample Result	Duplicate Result	Relative Percent Difference	Acceptance Criteria
Percent Acid	1.6	1.6	0	0-20

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Data Qualifiers & Definitions

a - The analyte was detected at a level less than five times the reporting limit. The RPD results may not provide reliable information on the variability of the analysis.

A1 - More than one compound of similar molecule structure was identified with equal probability.

b - The analyte was spiked at a level that was less than five times that present in the sample. Matrix spike recoveries may not be meaningful.

ca - The calibration results for this range fell outside of acceptance criteria. The value reported is an estimate.

c - The presence of the analyte indicated may be due to carryover from previous sample injections.

d - The sample was diluted. Detection limits may be raised due to dilution.

ds - The sample was diluted. Detection limits are raised due to dilution and surrogate recoveries may not be meaningful.

dv - Insufficient sample was available to achieve normal reporting limits and limits are raised accordingly.

fb - The analyte indicated was found in the method blank. The result should be considered an estimate.

fc - The compound is a common laboratory and field contaminant.

hr - The sample and duplicate were reextracted and reanalyzed. RPD results were still outside of control limits. The variability is attributed to sample inhomogeneity.

ht - The sample was extracted outside of holding time. Results should be considered estimates.

ip - Recovery fell outside of normal control limits. Compounds in the sample matrix interfered with the quantitation of the analyte.

j - The result is below normal reporting limits. The value reported is an estimate.

J - The internal standard associated with the analyte is out of control limits. The reported concentration is an estimate.

jl - The analyte result in the laboratory control sample is out of control limits. The reported concentration should be considered an estimate.

jr - The rpd result in laboratory control sample associated with the analyte is out of control limits. The reported concentration should be considered an estimate.

js - The surrogate associated with the analyte is out of control limits. The reported concentration should be considered an estimate.

lc - The presence of the compound indicated is likely due to laboratory contamination.

L - The reported concentration was generated from a library search.

nm - The analyte was not detected in one or more of the duplicate analyses. Therefore, calculation of the RPD is not applicable.

pc - The sample was received in a container not approved by the method. The value reported should be considered an estimate.

pr - The sample was received with incorrect preservation. The value reported should be considered an estimate.

ve - The value reported exceeded the calibration range established for the analyte. The reported concentration should be considered an estimate.

vo - The value reported fell outside the control limits established for this analyte.

x - The pattern of peaks present is not indicative of diesel.

y - The pattern of peaks present is not indicative of motor oil.

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

James E. Bruya, Ph.D.
Charlene Morrow, M.S.
Yelena Aravkina, M.S.
Bradley T. Benson, B.S.
Kurt Johnson, B.S.

3012 16th Avenue West
Seattle, WA 98119-2029
TEL: (206) 285-8282
FAX: (206) 283-5044
e-mail: fbi@isomedia.com

September 1, 2009



INVOICE # 09ACU0901-1

Accounts Payable
Alaskan Copper Works
628 South Hanford
Seattle, WA 98134

RE: Project PO M123213, F&BI 908159 - Results of testing requested by Gerry Thompson for material submitted on August 20, 2009.

2 samples analyzed for Specific Gravity @ \$30 per sample	\$ 60.00
2 samples analyzed for Percent Acid Content @ \$75 per sample	150.00
2 samples screened for Total Fe, As, Cd, Cr, Cu, Pb Ni, Ag, Zn by Method 6010B @ \$150 per sample	300.00
Rush Charges (5 day) 50% of \$510.00	<u>255.00</u>
Amount Due	\$ 765.00

FEDERAL TAX ID

(b) (6)

908159

SAMPLE CHAIN OF CUSTODY

ME 08/20/09

AI4

Send Report To General Thompson
 Company ALASKAN COPPER WORKS
 Address 628 S. Harbor St
 City, State, ZIP Seattle WA 98134
 Phone # 206-871-6033 Fax # 206-382-4809

SAMPLERS (signature)

Page # of

PROJECT NAME/NO.

PO #

Acid tanks

M123213

REMARKS

TURNAROUND TIME

☐ Standard (2 Weeks)☒ RUSH 2 day

Rush charges authorized by:

SAMPLE DISPOSAL

☐ Dispose after 30 days☐ Return samples☐ Will call with instructions

Sample ID	Lab ID	Date	Time	Sample Type	# of containers	ANALYSES REQUESTED										Notes
						TPH-Diesel	TPH-Gasoline	BTEX by 8021B	VOCs by 8260	SVOCs by 8270	HFS	% of Acid	Spec. Gravity	COCUMINIZ	AS Ag de FE	
M123213A	01	8/20/09	9:50am	HNO3	1							X	X	X	X	
Sm. Tank																
M123213B	02	8/20/09	9:50am	HNO3	1							X	X	X		
LG TANK																

Friedman & Bruya, Inc.
 3012 16th Avenue West
 Seattle, WA 98119-2029
 Ph. (206) 285-8282
 Fax (206) 283-5044

SIGNATURE	PRINT NAME	COMPANY	DATE	TIME
Relinquished by: <u>[Signature]</u>	<u>General Thompson</u>	<u>Aew</u>	<u>8/20/09</u>	<u>11:02am</u>
Received by: <u>[Signature]</u>	<u>Thuan Phan</u>	<u>FeBI</u>	<u>8/20/09</u>	<u>V</u>
Relinquished by:				
Received by:				

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

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September 1, 2009

Gerry Thompson, Project Manager
Alaskan Copper Works
628 South Hanford
Seattle, WA 98134

Dear Mr. Thompson:

Included are the results from the testing of material submitted on August 20, 2009 from the Acid Tanks, PO M123213, F&BI 908159 project. There are 9 pages included in this report. Any samples that may remain are currently scheduled for disposal in 30 days. If you would like us to return your samples or arrange for long term storage at our offices, please contact us as soon as possible.

We appreciate this opportunity to be of service to you and hope you will call if you have any questions.

Sincerely,

FRIEDMAN & BRUYA, INC.



Michael Erdahl
Project Manager

Enclosures
ACU0901R.DOC